

Large-Nc HPNC Analyses Post NPDGamma

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It has long been appreciated that low-energy weak parity non-conserving interactions between nucleons are governed by five S-P amplitudes, as originally described by Danilov. The formalism can also be recast in pionless effective field theory, where the low-energy constants (LECs) are the coefficients of the Danilov amplitudes. Lacking five high-quality independent constraints on these LECs, many past analyses have relied on meson exchange theory for some guidance as to which of the five amplitudes might be dominant. This approach has had mixed success in correlating the data, particularly as no experimental evidence has so far emerged for a nonzero weak pion-nucleon-nucleon coupling. Recently a new hierarchy for the LECs has emerged from large Nc QCD. I describe a recent analysis based on this approach, one that appears to describe existing data quite well, while altering the relationships among past and anticipated experiments. I discuss how NPDGamma, other new experiments, and a future lattice QCD calculation of the isotensor Danilov amplitude will further advance the field.

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